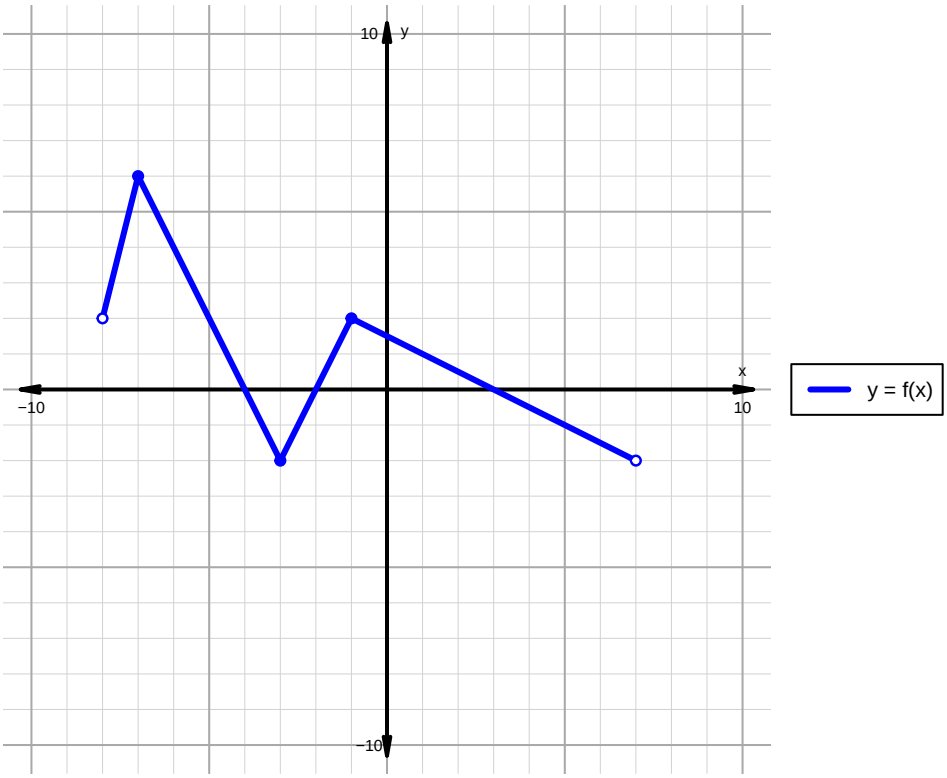
Name: Date:

## Intervals, Transformations, and Slope Solution (version 26)

1. The function $f$ is graphed below.




Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate $x$ values; this is standard.

| Feature | Where |
|---|---|
| Positive | $(-8,-4) \cup (-2,3)$ |
| Negative | $(-4,-2) \cup (3,7)$ |
| Increasing | $(-8,-7) \cup (-3,-1)$ |
| Decreasing | $(-7,-3) \cup (-1,7)$ |
| Domain | $(-8,7)$ |
| Range | $(-2,6)$ |

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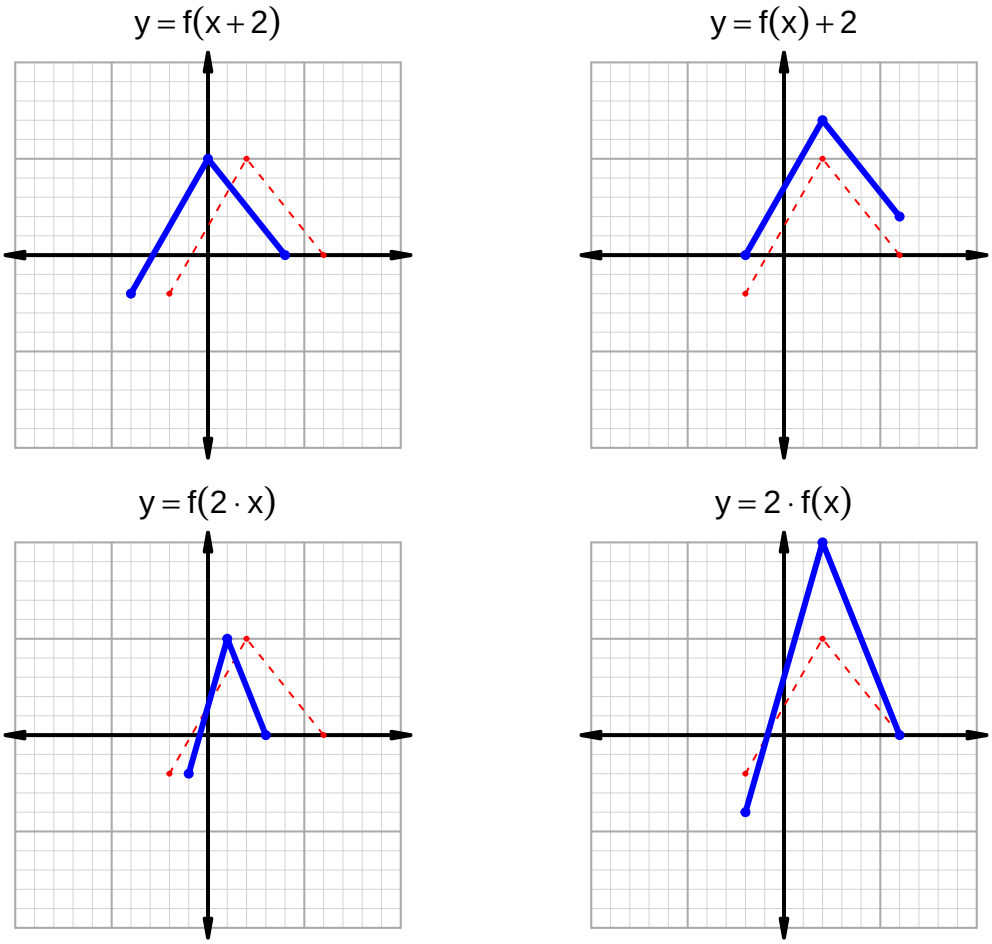
2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.




3. Let function $g$ be defined by the table below. Use the formula $\frac{g(x_2)-g(x_1)}{x_2-x_1}$ to find the average rate of change between $x_1 = 34$ and $x_2 = 70$. Express your answer as a reduced fraction.

| $x$ | $g(x)$ |
|---|---|
| 34 | 49 |
| 49 | 70 |
| 70 | 81 |
| 81 | 34 |

$\frac{f(70)-f(34)}{70-34} = \frac{81-49}{70-34} = \frac{32}{36}$

The greatest common factor of 32 and 36 is 4. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{8}{9}$$